WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

REQUIREMENTS FOR STATE PERMIT MINE APPLICATIONS RELEVANT TO GROUND WATER EFFECTS.

SMCRA PERMIT APPLICATION

- O DATA, MAPS, AND ANALYSIS IS PROVIDED BY THE PERMITTEE
- O PERMIT AREA GEOLOGY DATA
- O PERMIT AREA HYDROLOGY DATA
  - BASELINE GROUND WATER
  - BASELINE SURFACE WATER
- O PHC, HRP, AND CHIA ASSESSMENTS
- O SMCRA AND NPDES COMPLIANCE MONITORING
  - DURING MINING GROUND WATER MONITORING PLAN
  - DURING MINING SURFACE WATER MONITORING PLAN
- O POST- MINING WATER DISCHARGE QUALITY
- O POST-MINING CLOSURE
  - PHASE BOND RELEASE

NPDES PERMIT APPLICATION

- O GROUND WATER PROTECTION PLAN

T.Galya, WVDEP, Nitro, WV
5/9/00

WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

GEOLOGIC INFORMATION- SECTION I, MR-4 PERMIT FORM

SECTION I PROVIDES:

- DRILL HOLE DATA
  - STRATEGRAPHIC DATA - 38CSR2 §3.23.A.2
  - ACID-BASE ACCOUNTING OF SEAM AND OVERBURDEN DATA - 38CSR2 §3.23 and §3.23.f.1
- GEOLOGIC CROSS SECTIONS - 38CSR2 §3.23A and §3.23.f.4
- HYDROGEOLOGIC MAP - 38CSR2 §3.23.b
- GEOLOGIC DESCRIPTION OF THE PERMIT AND ADJACENT AREA
  - STRATRGRAPHY - 38CSR2 §3.23.a.2
  - STRUCTURE - 38CSR2 §3.23.b
- ANTICIPATED IMPACTS ON GEOLOGY AND HYDROLOGY OF THE PERMIT AREA - 38CSR2 §3.23.f.5

Section I: Geologic Information

NOTE: The geologic information being required shall address both the areal and structural geology and related information of both the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined, or any aquifer which may be adversely impacted below the lowest coal seam to be mined.

I-1. Provide the following information for all coal seam(s), rider(s), and/or refuse to be mined, processed, stockpiled, or affected by the proposed operation.

COAL, RIDER SEAM(S) AND/OR COAL REFUSE (USGS NAME)	THICKNESS (INCHES)	SULFUR FORMS *(Yo)*			
		ORGANIC	PYRITIC	SULFATE	TOTAL

NOTE: Acid-producing coal seams include but are not limited to the Waynesburg, Washington, Freeport, Sewickley, Redstone, Pittsburgh, Kittanning, Elk Lick, Peerless, No. **2** Gas, Upper Eagle, No. **5** Block, and Stockton Lewiston.

1-2. Is gravity discharge anticipated from a proposed underground mine or augering area?

☐ Yes ☐ No ☐ N/A

If yes, and coal seams are defined as acid-producing, provide site-specific data demonstrating that the seams to be mined are no acid-producing or iron-producing in the location of the proposed mine. *Identify as attachment I-2*

1-3. Is coal fly ash usage proposed?

☐ Yes ☐ No

If Yes, provide analysis to show its chemical properties. *Identify as attachment 1-3*

1-4. Is coal processing refuse disposal proposed?

☐ Yes ☐ No

If Yes, provide overburden analysis to show its chemical properties. *Use attachment I-11*

1-5. Are durable rockfills proposed?

☐ Yes ☐ No

If Yes, provide slake durability analysis. *Use attachment I-I 1*

1-6. Does the applicant request a waiver of the requirement to provide certain geologic information?

☐ Yes ☐ No

If Yes, address **A.** and B. below:

A. Check the type of waiver requested:

☐ Results of test borings as requested in I-1 1.

☐ Engineering properties of soft rock for underground mines as requested in I-12.

B. Provide the specific source of existing equivalent information available upon which the request for waiver is based. *Identify as attachment **I-6***

I-7. Provide certified geologic cross-sections which include the following: *Identify as attachment I-7*

A. Nature and depth of the various strata or overburden including geologic formation names and/or geologic members as described by the **U.S.** Geological Survey or other published geologic reports;

B. Presence of any known structural features such as faults, fractures, anticlines, synclines, and monoclines;

C. Depth of weathering identified during exploration and drilling;

D. Nature and thickness, in inches, of all coal or rider seams above and immediately below the proposed coal seam(s) to be mined;

E. Nature and thickness of the stratum immediately beneath the lowest coal seam to be mined;

F. Vertical distribution of aquifers and the name(s) of the stratum (or strata) in which the water is found. For each aquifer system, show the seasonal fluctuations in head and general water quality information. Also, provide appropriate cross-references to the detailed water quality information under the baseline ground water information section; and

G. Denote any potentially acid-producing materials, topsoiling, and durable materials.

MR-4, SECTION I, GEOLOGIC INFORMATION

1-7. PROVIDE CERTIFIED GEOLOGIC CROSS-SECTIONS WHICH INCLUDE THE FOLLOWING:

F. VERTICAL DISTRIBUTION OF AQUIFERS – 38CSR2 §3.23.c

- FOR EACH AQUIFER SYSTEM:
  - NAME(S) OF THE STRATUM (OR STRATA) IN WHICH WATER IS FOUND
    - SHOW THE SEASONAL FLUCTUATIONS IN HEAD – 38CSR2 §3.22.b.3 AND §3.23.c
    - GENERAL WATER QUALITY INFORMATION – 38CSR2 §3.22.b.1
    - PROVIDE APPROPRIATE CROSS-REFERENCES
- DETAILED BASELINE GROUND WATER QUALITY INFORMATION – 38CSR2 §3.22.b.2

I-8. Provide a certified geohydrologic map identifying the following:
NOTE: Proposal map can be utilized only if this additional information does not make the map difficult to read.

A. Locations (latitude and longitude) and elevations of all bore holes and sampling sites;

B. All mineral croplines and the strike and dip of the coal to be mined;

C. Existing or previous surface mining limits with their permit numbers;

D. Location and extent of known workings of any underground mines and auger mined areas, including mine openings to the surface. Label these openings as to whether they are currently discharging water or are known to have discharged water in the past;

E. Areal extent of aquifers with the name(s) of the stratum (or strata) in which the water is found and show the anticipated direction of water movement;

F. Location and depth of all oil and gas wells, and their Office of Oil and Gas permit numbers, for all wells which are within the proposed mining limits (surface or underground) and/or within 1000 feet of the proposed permit boundary;

G. Presence and attitude of any known structural features such as faults; axial traces of synclines, anticlines, and monoclines; and any recognized fracture patterns of lineament traces;

H. Location of geologic cross-section(s).

1-9. Provide a detailed geologic description of the permit and adjacent areas which include the following: *Identify as attachment I-9.*

A. Stratigraphic and lithologic descriptions of the area to be affected by mining;

B. Hydrogeologic setting including the areal and vertical distribution of all aquifers; seasonal differences in head; the name(s) of the stratum (or strata) in which the water is found; and the availability, movement, quality, and quantity of ground water flow in all aquifer units;

C. Structural geology of the coal seam and the strata to be affected by mining both in the permit and adjacent areas, including faults, folds, fracture and lineament traces, and regional and site specific strike and dip;

D. Geochemical character of all strata and coal to be disturbed by mining and the potential of this strata for generating acid, alkaline, or iron-laden drainage;

E. Depth and degree of weathering of area strata and the effects this weathering has on the physical and geochemical properties of the overburden proposed for disturbance;

F. Effects of fracturing and weathering on the extraction of coal and the hydrologic regime;

MR-4, SECTION I, GEOLOGIC INFORMATION

1-9. PROVIDE A DETAILED GEOLOGIC DESCRIPTION OF THE PERMIT AND ADJACENT AREAS WHICH INCLUDE THE FOLLOWING:

B. HYDROGEOLOGIC SETTING

- AREAL DISTRIBUTION OF ALL AQUIFERS – 38CSR2 §3.2c
- VERTICAL DISTRIBUTION OF ALL AQUIFERS – 38CSR2 §3.2c
- SEASONAL DIFFERENCES IN HYDROSTATIC HEAD – 38CSR2 §3.22.b.3
- THE NAME(S) OF THE STRATUM (OR STRATA) IN WHICH WATER IS FOUND
- AVAILABILITY OF GROUND WATER FLOW IN ALL AQUIFER UNITS – 38CSR2 §3.22.c.3
- HYDROGEOLOGY OF GROUND WATER FLOW IN ALL AQUIFER UNITS
  - QUALITY OF GROUND WATER FLOW – 38CSR2 §3.22.b.2
  - QUANTITY OF GROUND WATER FLOW – 38CSR2 §3.22.b.3

G. Anticipated impacts of all proposed and existing operations on the geology and hydrology of the area, including impacts resulting from multiple seam mining and subsidence;

H. For underground mining operations (including auger mining) indicate whether or not there is the potential for gravity discharge(s) and the anticipated quantity and quality of the discharge(s) from each potential discharge site. For non-gravity discharge situations, indicate the potential for seepage along the outcrop barrier and the potential hydraulic head which might result in the underground workings. Indicate if the potential discharge will require chemical treatment.

I-10. Complete Geologic Borehole Log for all test borings and coreholes in the proposed permit and adiacent area. ***Use attachment 1-10***

I-11. Provide a statement of results of the test borings or core samples for the proposed permit and adiacent areas. ***Use attachment I-11.***

1-12. Provide for room and pillar mining operations the thickness and analyzed engineering properties of clays or soft rock in the stratum immediately above and below each coal seam to be mined. ***Identify as attachment 1-12***

1-13. Will topsoil substitute be utilized?

☐ Yes ☐ No

If Yes, include analysis of original topsoil, topsoil substitute, and appropriate certifications. Demonstrate that the proposed substitute material is of sufficient quantity and equally suitable for sustaining vegetation as the existing topsoil and the resulting soil medium is the best available in the permit area to support vegetation. ***Identify us attachment 1-13***

GEOLOGIC BOREHOLE LOG

Attachment 1-10

Page ____ of ____

Company Name	Location:	Hole Number
	Quadrangle______________	
	Latitude______________	
Surface Elevation	Longitude______________	Driller______________
		Date Drilled______________

SAMPLE NO.	DEPTH FROM SURFACE (feet)	THICKNESS OF STRATUM (feet)	LITHOLOGIC DESCRIPTION

OVERBURDEN SAMPLE ANALYSIS

Attachment I-11

Company Name _____ **Mine Name** _____ Page ___ of ___

Sampling Point _____
(Reference to Lithologic Log)

Laboratory Name _____

Sample I. D. No.	Elevation Top of Stratum (ft/msl)	Unit Thickness (Feet)	Material	Paste pH	Total Sulfur (%)	Pyritic Sulfur (%)	* Potential Acidity	* Neutralize Potential	* Net Excess or Deficiency	** Fizz Rate	*** Color	Slake Durability Index (SDI)

*Units in tons of $CaCO_3$ equivalent per 1000 tons of material

**Units: 0 = None 1 = Slight 2 = Moderate 3 = Strong

***Munsell Color Chart

WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

HYDROLOGIC INFORMATION-- SECTION J, MR-4 PERMIT FORM

SECTION J PROVIDES:

- INVENTORY OF GROUND WATER USERS – 38CSR2 §3.22.b.1
- BASELINE SURFACE WATER CHEMISTRY DATA - 38CSR2 §3.22.c
- BASELINE GROUND WATER CHEMISTRY DATA - 38CSR2 §3.22.b
- PHC (PROBABLE HYDROLOGIC CONSEQUENCES) OF PROPOSED OPERATION – 38CSR2 §3.22.b.4
- HRP (HYDROLOGIC RECLAMATION PLAN) - 38CSR2 §3.22.f AND §3.22.b.4

Section J: Hydrologic Information

J-1. Identify on the PROPOSAL MAP all surface water and ground water bodies on the proposed permit area, adjacent areas and areas over the proposed mineral extraction.

J-2. Provide a Ground Water Inventory on the proposed permit area. adjacent areas and areas over the proposed mineral extraction. *Use attachment J-2*

J-3. Provide Baseline Surface Water Quality and Quantity information for the proposed permit area, adjacent areas and areas over the proposed mineral extraction. ***Use attachments J-3A and B***

J-4. Provide Baseline Ground Water Quality and Quantity information for the proposed permit area, adjacent areas and areas over the proposed mineral extraction. *Use* ***attachment J-4A and*** *B*

J-5. Are there significant aquifers on the proposed permit area, adjacent areas and/or areas over the proposed mineral extraction?

☐ Yes ☐ No

If Yes, provide a description to include discharge rates or usage and depth to water under seasonal conditions. ***Identify as attachment J-5***

J-6. Provide a statement describing the **Probable Hydrologic Consequences (PHC)** of the proposed mining operation, with respect to the hydrologic balance, on the permit area, adjacent areas, and over the proposed mineral extraction. The statement must provide the following information: ***Identify as attachment J-6.***

WATER OUANTITY:

- Whether the proposed operation may result in water supply diminution or interruption for any ground or surface water source currently being used for domestic, agricultural, industrial, or any other legitimate purpose;
- Potential impact the proposed operation will have on flooding or streamflow alteration, including channel scouring and dewatering of streams;
- Whether the proposed operation will disturb aquifers that significantly insure water use;
- Potential effects of the proposed operation on ground and surface water availability.

WATER QUALITY:

- Whether the proposed operation may result in water supply contamination for any underground or surface water source currently being used for domestic, agricultural, industrial, or any other legitimate purpose;
- Whether acid or toxic forming materials are present which could result in the contamination of surface or ground water;
- Potential impact the proposed operation will have on sediment yield;
- Potential impacts resulting from increases in total hot acidity, total suspended solids, dissolved solids, and other important water quality parameters.

GRAVITY DISCHARGE/OUTCROP SEEPAGE:

- Potential for gravity discharge from the underground workings during and after mining, the potential impacts resulting from the complete failure of the outcrop barrier, and the formation of outcrop seepage faces. (Provide calculations)

1-7. Does the PHC indicate that a currently used or significant ground water resource is likely to be contaminated, diminished, or interrupted?

☐ Yes ☐ No

If Yes, provide the following information. ***Identifi as attachment J-7***

A. Identify the alternative water source(s) and provide a detailed description of any aquifer, developed or undeveloped, proposed as an alternative water source;

- If the alternative source(s) is developed , show the location on the proposal map using designation **AW-1, AW-2,** etc.
- If the alternative source(s) is undeveloped, provide proposed plans and specifications.

B. Provide water quality and quantity data demonstrating its suitability for the identified use(s).

J-8. Does the PHC indicate that a currently used or significant surface water resource is likely to be contaminated. diminished, or interrupted?

☐ Yes ☐ No

If Yes, provide the flood flows, base flows, and other characteristics to fully evaluate such probably hydrologic consequences as water availability and suitability for both the pre mining and postmining land use in order to plan remedial and reclamation activities. ***Identifi as attachment J-8***

J-9. Is a waiver of ground water monitoring requested?

☐ Yes

If Yes, identify each individual water-bearing stratum for which a waiver is requested and demonstrate by use of the PHC determination and other available baseline hydrologic and geologic information that the particular water-bearing stratum is not one which serves or may potentially serve as a significant aquifer or one which ensures the hydrologic balance within the cumulative impact area.

If No, provide letter(s) of permission to monitor domestic water supplies proposed as monitoring sites. ***Identifi as attachment J-9***

NOTE: The ground water and surface water monitoring plans are to be included in Section U of this application.

J-10. Provide copies of original laboratory data sheets for the surface water and ground water baseline monitoring sites. *Identify as attachment J-10*

J-11. Provide a hydrologic reclamation plan in the form of maps and/or narrative which describes the steps to be taken to minimize disturbances to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; to met applicable federal and state water quality laws and regulations; and to protect the rights of present water users. The plan shall include: *Identify as attachment J-I I*

A. Preventive and remedial measures to avoid acid or toxic mine drainage;
B. Measures to assure the protection of the quality and quantity of surface and ground water systems;
C. Measures to be taken to prevent, to the extent possible, contributions of suspended solids;
D. Measures to control drainage and, if needed, a description of the water treatment facilities;
E. Measures to be taken to restore, enhance, protect, or replace the approximate premining recharge capacity (underground operations do not need to respond to this subpart);
F. Measures to be taken to prevent, control, or mitigate the adverse impacts of gravity, seepage, or pump discharges from underground mines and/or augering, if applicable; and
G. Restore, protect or replace the water supply of present water users in accordance with section 24 of the Act.
H. Preventive and remedial measures to prevent any other potential adverse hydrologic impacts identified in the PHC.

GROUND WATER INVENTORY

Attachment J-2

*D = DOMESTIC I = INDUSTRIAL P = POTABLE (Drinkable) O = OTHER

NAME	ADDRESS	WELL (*)	SPRING (*)

BASELINE SAMPLING SITE DESCRIPTION

SURFACE WATER

Attachment J-3A

SAMPLING SITE	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION

BASELINE SURFACE WATER ANALYSIS

Attachment J-3B

Company Name: _____

Mine Name: _____

Laboratory Name: _____

Sample I.D. No.	Date Sampled	pH	Flow cfs or gpm	Total Hot Acidity ppm $CaCO_3$	Mineral Acidity ppm $CaCO_3$	Total Alkalinity ppm $CaCO_3$	Total Fe ppm	Total Mn ppm	TSS ppm	TDS ppm	Spec. Cond. µmhos	SO_4 ppm	Al ppm	

BASELINE SAMPLING SITE DESCRIPTION

GROUND WATER

Attachment J-4A

SAMPLING SITE	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION	SOURCE/ AQUIFER

BASELINE GROUND WATER ANALYSIS

Attachment J-4B

Company Name: _____

Mine Name: _____

Laboratory Name: _____

Sample I.D. No.	Date Sampled	pH	Flow gpm or depth to water (ft)	Total Hot Acidity ppm $CaCO_3$	Mineral Acidity ppm $CaCO_3$	Total Alkalinity ppm $CaCO_3$	Total Fe ppm	Total Mn ppm	TSS ppm	TDS ppm	Spec. Cond. µmhos	SO_4 ppm	Al ppm	Other

BASELINE SAMPLING SITE DESCRIPTION
GROUND WATER

Attachment J-4A

GW-1	Benlah Justice-Drilled Well-100'+ deep	37" 40' 35"	82° 08' 37"	950'	Sandstone
GW-2	James Smith	37" 40' 13"	82" 07' 01"	965'	Sandstone
GW-3	Wade Canada,Sr.-Drilled Well-102' deep	37" 41' 49"	82° 06' 36"	950'	Sandstone
GW-4	James Bailey-Drilled Well-83' deep	37" 41' 37"	82" 07' 37"	975'	Sandstone

BASELINE GROUND WATER ANALYSIS

Attachment J-4B

Company Name: **White Flame Energy, Inc.**
Mine Name: **Surface Mine No. 9**
Laboratory: **J & M Monitoring, Inc.**

Sample I.D. No.	Date Sampled	pH	Flow gpm or depth to water (ft)	Total Hot Acidity ppm CaCO3	Mineral Acidity ppm CaCO3	Total Alkalinity ppm CaCO3	Total Fe ppm	Total Mn ppm	TSS ppm	TDS ppm	Spec. Cond. umhos	SO4 ppm	Al ppm	Other
GW-2	10/30/96	6.30	--	0.00	--	78.00	6.23	1.22	134.00	--	--	40.00	--	
GW-2	11/13/96	6.90	--	0.00	--	75.00	5.39	0.63	42.00	--	319.00	37.00	--	
GW-2	12/20/96	6.70	--	0.00	--	143.00	3.52	0.55	42.00	--	--	42.00	--	
GW-2	01/31/97	6.80	--	0.00	--	71.00	22.63	0.64	2.00	--	295.00	15.00	--	
GW-2	02/14/97	7.20	--	0.00	--	64.00	0.043	0.70	26.00	--	280.00	40.00	--	
GW-2	03/05/97	7.00	--	0.00	--	71.00	4.44	0.85	18.00	--	260.00	17.00	--	

Workshop on Mountaintop Mining effects on Ground water

CHIA- The Director shall perform a separate CHIA *(reference in CSR2* 38 *3.22d)* for the Cumulative Impact Area (CIA) of each permit application. The evaluation determines whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

A. Determine whether the hydrologic assessment of the CIA indicates that the addition of the impacts of the proposed operation to those of the other Anticipated Mining operations may cause material damage to the hydrologic balance outside the permit area.

B. Acknowledgment of hydrologic concerns in the PHC and HRP, and discuss rationale for inclusion of each concern addressing each significant ground water (aquifer) use.

C. Develop indicator parameters to monitor ground water quality and quantity in order to evaluate potential adverse effects upon significant aquifer uses.

D. Determine the material damage criteria that will be used to identify impacts to significant aquifer uses.

- Water quality
- Water quantity

E. Selection and establishment of Threshold impact assessment-monitoring sites in the CIA.

1. Selection of Threshold impact sites where impacts are to be assessed; sites located on CIA map.

Section U: Water Monitoring Plan

U-1. Provide a surface water monitoring plan to include the following: *Identify as attachment U-1*

A. Monitoring site locations;

B. Quality and quantity parameters; and

C. Sampling and reporting frequency.

(NOTE: Attached Surface Water Analysis Form is lo be completed and submitted to DEP as required).

U-2. Provide **a** ground water monitoring plan to include the following, if applicable: *Identify as attachment* ***U-2.***

A. Monitoring site locations;

B. Quality and quantity parameters; **and**

C. Sampling frequency.

(NOTE: Attached Ground Water Analysis Form is lo be completed and submitted lo DEP as required).

WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

PHASE I BOND RELEASE

- RAW WATER DATA IS REQUIRED FOR ALL PHASE I RELEASES. MINIMUM, ONE (1) SAMPLE PER DRAINAGE AREA

- WHERE NO CHEMICAL TREATMENT HAS BEEN USED DURING THE LAST 12 MONTHS

  - RAW WATER NOT REQUIRED

- WHERE CHEMICAL TREATMENT HAS BEEN USED DURING THE LAST 12 MONTHS

  - **SIX** MONTHLY SAMPLES OF RAW WATER MUST BE COLLECTED AND ANALYZED SHOWING COMPLIANCE WITH THE EFFLUENT LIMITS SET FORTH IN THE NPDES PERMIT, AS WELL AS THE SMCRA REGRADING REQUIREMENTS

- WHERE CHEMICAL TREATMENT **IS** CURRENTLY BEING USED OR IS NEEDED TO MEET THE EFFLUENT LIMITS AT THE OUTLET

  - PHASE I RELEASE WILL NOT BE GRANTED

- PHASE I BOND RELEASE MAY BE GRANTED WITH CHEMICAL TREATMENT IF THE PERMITTEE COMPLIED WITH STIPULATIONS IN 38CSR2 §12.2.e OF THE REGULATIONS

WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

PHASE II BOND RELEASE

- ALL ITEMS MUST BE ADDRESSED IN PHASE I PRIOR TO THE SUBMISSION FOR PHASE II BOND RELEASE

- A ONE YEAR HISTORY OF RAW WATER SAMPLES TAKEN AT INTERVALS SET FORTH IN THE NPDES AND MEETING APPLICABLE EFFLUENT LIMITS OF NPDES PERMIT.

- ALL SAMPLING MUST BE DONE FOR CONSECUTIVE PERIODS THROUGHOUT THE REQUIRED DURATION

- DMR'S SHOWING THE OUTLET MEETS EFFLUENT LIMITS ARE NOT ACCEPTABLE AS RAW WATER EVEN IF THERE IS NO CHEMICAL TREATMENT.

- PERMIT WILL BE REQUIRED TO ABANDON A STRUCTURE AND/OR TO OBTAIN PHASE II BOND RELEASE

WORKSHOP ON MOUNTAINTOP MINING EFFECTS ON GROUND WATER

PHASE III BOND RELEASE

- MUST HAVE ACTIVE NPDES PERMIT COVERING ARTICLE 3 SMCRA PERMIT THAT ACCURATELY REFLECTS THE CURRENT CONDITIONS

- MUST BE MODIFIED TO DELETE ANY OUTLETS WHERE ANY DRAINAGE STRUCTURE HAS BEEN REMOVED. IF ALL DRAINAGE STRUCTURES HAVE BEEN REMOVED, THEN AN APPROVED STORM WATER PERMIT IS NECESSARY.

- MUST BE FIVE YEARS AFTER LAST AUGMENTED SEEDING AND NOT LESS THAN TWO YEARS AFTER REMOVAL **OR** BREACHING OF ANY DRAINAGE STRUCTURE

  - THE EXCEPTION IS LIGHT INDUSTRY FOR THE POST MINING LAND USE

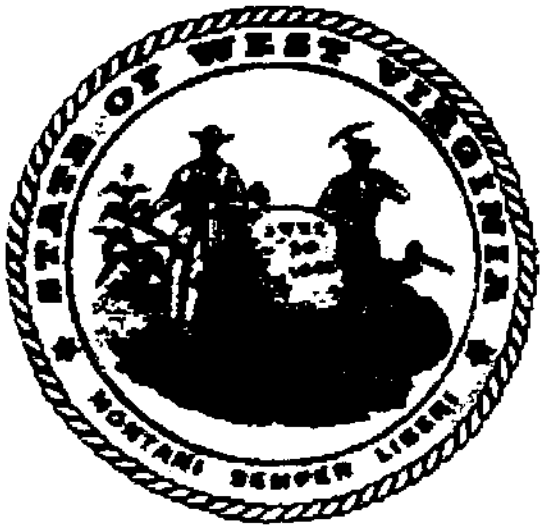
- RAW WATER FROM THE PERMITTED AREA MUST MEET THE EFFLUENT LIMITS SET IN THE NPDES PERMIT

  - RAW WATER DOES NOT SHOW ANY ADVERSE IMPACT TO THE HYDROLOGIC BALANCE

West Virginia
Surface Mining Reclamation Regulations

West Virginia
Surface Coal Mining and Reclamation Act

Office of Explosives and Blasting



Bureau of Environment
Division of Environmental Protection

1999

3.21.a. If the Director is unable to determine whether the proposed operation is located within the boundaries of any of the lands described in paragraph (1), subsection (d), section 22 of the Act, or closer than the limits provided in paragraph (4), subsection (d), section 22 of the Act, the Director shall transmit a copy of the relevant portions of the permit application to the appropriate Federal, State or local government agency for a determination or clarification of the relevant boundaries or distances. The agency shall make such determinations within thirty (30) days of receipt of the Director's request. The Director may extend the response period by thirty (30) days upon written request.

3.21.b. When the Director receives any request for determination of valid existing rights on lands within the area of jurisdiction of the National Park Service or the U. S. Fish and Wildlife Service, a notification shall be made to the appropriate agency, and they shall have thirty (30) days in which to respond. The Director may, upon written request, extend the response period by an additional thirty (30) days.

3.21.c. Where the proposed operation would include Federal lands within the boundaries of any national forest when the applicant seeks a determination that mining is permissible under paragraph (5), subsection (d), section 22 of the Act, the applicant shall submit a permit application to the field office of the Federal Office of Surface Mine Reclamation and Enforcement with a request that such determinations be made.

3.22. Hydrologic Information.

3.22.a. PHC. Each permit application shall, in addition to the requirements of the Act, contain a statement describing the probable hydrologic consequences (PHC) of the proposed mining operation, with respect to the hydrologic balance, on both the permit area and adjacent areas. The statement shall be based on base line information developed from sampling and analysis of surface and groundwater at monitoring sites established both on the permit area and adjacent areas. Sampling and analysis shall be performed in accordance with methods approved by the Office of Surface Mining Reclamation and Enforcement. The longitude, latitude and elevation shall be given for each of the monitoring sites. Mathematical modeling techniques may be used to aid in the development of the required information. The PHC determination shall include findings on: whether adverse impacts may occur to the hydrologic balance; whether acid-forming or toxic-forming materials are present that could result in the contamination of surface or ground-water, and whether the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial, or other legitimate purpose; and what impact the proposed operation will have on:

3.22.a.1. Sediment yield from the disturbed area;

3.22.a.2. Acidity, total suspended and dissolved solids, and other important water quality parameters;

3.22.a.3. Flooding or stream flow alteration;

3.22.a.4. Ground-water and surface-water availability; and

3.22.a.5. Other characteristics as required by the Director.

3.22.b. Base Line Ground Water Information. Each application for a permit shall contain:

3.22.b.1. The location, ownership, and use (if any) of known existing wells, springs, and other groundwater resources including discharges from other active or abandoned mines on the proposed permit area and adjacent areas in sufficient numbers to allow the applicant to make a reasonable approximation of the base line

groundwater conditions and use;

3.22.b.2. Water quality analysis including, at a minimum, total dissolved solids, alkalinity, acidity, sulfates, specific conductance, pH, total iron and total manganese. Correlation data from other monitoring sites within the general area of the proposed mining operations may be accepted; provided, that a limited number of validation samples from the permit area may be required; provided further, that in areas where prior mining experience has shown acid production to be a possibility, or in acid producing seams in areas with no prior mining history, site specific water sampling and analysis data shall be required;

3.22.b.3. For significant aquifers, groundwater quantity descriptions including discharge rates or usage and depth to water under seasonal conditions in each water-bearing stratum above the coal seam and each potentially impacted stratum below the coal seam. Where deemed appropriate and feasible by the Director the operator may calculate water usage for water status discharge determinations; and

3.22.b.4. If the determination of the probable hydrologic consequences (PHC) indicates that a currently used or significant groundwater, resources is likely to be contaminated, diminished, or interrupted, additional information shall be provided as necessary to fully evaluate such probable hydrologic consequences as water availability and suitability for both the premining and postmining land use in order to plan remedial and reclamation activities such as alternative water sources.

3.22.c. Base Line Surface Water Information. Each application for a permit shall contain:

3.22.c.1. The name, location, ownership, and description of all surface water bodies on the permit area and adjacent areas;

3.22.c.2. Water quality descriptions including information on total suspended solids, total dissolved solids, specific conductance, pH, acidity, alkalinity, sulfates, total iron and total manganese sufficient to demonstrate seasonal variations; provided, that correlation data from other monitoring which does not include one or more of the above parameters may be accepted; provided further, that a limited number of validation samples may be required. In areas where prior mining experience has shown acid production to be a possibility, or in acid producing seams in areas with no prior mining history, site specific water sampling and analysis data shall be required;

3.22.c.3. Water quantity descriptions including information on seasonal flow rates, variation, and usage; and

3.22.c.4. If the determination of the probable hydrologic consequences (PHC) indicates that a currently used or significant surface water resource (including all lightly buffered streams) is likely to be contaminated, diminished, or interrupted, additional information shall be provided on the flood flows, base flows, and other characteristics or information as necessary to fully evaluate such probable hydrologic consequences as water availability and suitability for both the premining and postmining land use in order to plan remedial and reclamation activities such as alternative water sources.

3.22.d. The applicant shall submit with the application all available data and analysis described in subdivisions 3.22.b and 3.22.c of this subsection for use in preparing the cumulative hydrologic impact assessment (CHIA).

3.22.e. The Director shall perform a separate CHIA for the cumulative impact area of each permit application. This evaluation shall be sufficient to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

3.22.f. Each permit application shall

contain a hydrologic reclamation plan. The plan shall be specific to the local hydrologic conditions. It shall contain in the form of maps and descriptions the steps to be taken during mining and reclamation through bond release to minimize disturbances to the hydrologic balance within the permit and adjacent areas; to prevent material damage outside the permit area; to meet applicable Federal and State water quality laws and regulations; and to protect the rights of present water users. The plan shall include the measures to be taken to:

3.22.f.1. Avoid acid or toxic drainage;

3.22.f.2. Prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to stream flow;

3.22.f.3. Provide water treatment facilities when needed:

3.22.f.4. Control drainage;

3.22.f.5. Restore, protect, or replace water supply of present water users in accordance with section 24 of the Act. The plan shall specifically address the potential adverse hydrologic consequences identified in the PHC determination and shall include preventive and remedial measures; and

3.22.f.6. Restore approximate premining recharge capacity provided that underground mining operations are exempt from this requirement

3.22.g. Each application for a permit shall contain a surface water monitoring plans based on the PHC determination and base line hydrologic and geologic information. These plans shall identify monitoring site locations, quantity and quality parameters, sampling frequency, and describe how the data will be used to determine the impact of the operation on the hydrologic balance both on the permit area and adjacent areas. Monitoring sites shall be located in the surface water bodies such as streams, lakes. and impoundments that are potentially impacted or into which water will be discharged at both upstream and downstream locations from the discharge. Monitoring parameters shall include but are not limited to total dissolved solids or specific conductance corrected at 25°C, total suspended solids, flow measurements, pH, acidity, alkalinity, total iron and total manganese. The selection of these parameters must be based on current and approved postmining land uses and all hydrologic balance protection objectives.

3.22.h. Each application for a permit shall contain a ground water monitoring plan for all significant groundwater resources provided that monitoring shall not be required if the applicant can demonstrate that the aquifer is not one which significantly ensures the hydrologic balance within the cumulative impact area as provided in subdivision 14.7.c of this rule. The decision of need will be based on the PHC determination and base line hydrologic and geologic information gathered both on and *off* the mine site. These plans shall identify monitoring site locations (latitude, longitude, and ground level elevations), quantity and quality parameters to be monitored, sampling frequency and duration, and describe how the data will be used to determine the impact of the operation on the hydrologic balance both on and off the mine site. Monitoring parameters shall include, but are not limited to, total dissolved solids or specific conductance corrected at 25°C, pH, acidity, alkalinity, total iron, total manganese, and water levels or discharge rates. The selection of these parameters must be based on current and approved postmining land uses and all hydrologic balance protection objectives.

3.22.i. If the PHC indicates that adverse impact may occur to the hydrologic balance or that acid forming or toxic forming material is present that may result in contamination of surface or groundwater supplies, then additional information supplemental to that required in subdivisions 3.22.b and 3.22.c. of this subsection shall be provided to evaluate such probable

hydrologic consequences and to plan remedial and reclamation activities.

3.23. Geology. Each application for a permit shall contain the following geologic and related information:

3.23.a. Geologic cross sections, maps or plans of the proposed permit area and adjacent areas, prepared by or under the direction of and certified by a person approved by the Director. When required by the Director, test borings or core samplings shall be analyzed to determine the following information:

3.23.a. 1. The locations (latitude and longitude) and elevations of all bore holes;

3.23.a.2. The nature and depth of the various strata or overburden including geologic formation names and/or geologic members;

3.23.a.3. The elevation location of subsurface wafer, if encountered, and its quality;

3.23.a.4. The nature and thickness of any coal or rider seams above the seam to be mined;

3.23.a.S. The nature of the stratum immediately beneath the coal seam to be mined;

3.23.a.6. All mineral crop lines and the strike and dip of the coal to be mined, within the area of land to be affected;

3.23.a.7. Exiiingorprevious surface mining limits; and

3.23.a.8. The location and extent of known workings of any underground mines, including mine openings to the surface,

3.23.b. Information concerning the areal and structural geology of both the proposed permit and adjacent areas, down to the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer which may be adversely impacted below the lowest coal seam to be mined. Areal geology may include information such as mapped outcrop locations shown on a 7 ½ minute United State Geological Survey (U.S.G.S.) topographic map, aerial photographs and published geologic reports for the area of concern. Structural geology may include mapped lineament traces from aerial photography or topographic maps and any published structural geologic reports for the area of concern;

3.23.c. Areal and vertical distribution of aquifers with seasonal differences in head and the name(s) of the stratum (or strata) in which the water is found;

3.23.d. Location and depth of all oil and gas wells within the proposed permit area for both surface and underground mines;

3.23.e. For underground mining operations, indicate whether or not there will be a gravity discharge; and

3.23.f. A statement of the result of test borings or core samples from the permit and adjacent areas including:

3.23.f.l. The results of test borings including the lithologic logs of the drill holes displaying the physical properties and thickness of each stratum encountered which the applicant has made at the area to be covered by the permit, or other equivalent information and data in a form satisfactory to the Director including the structural geology, thickness of the coal seam to be mined, location of subsurface water, if encountered, and an analysis of the chemical and physical propenies. including but not limited to the sulfur content of any coal seam, the chemical analysis of potentially acid or toxic-forming sections of the overburden, and the chemical analysis of the stratum lying immediately underneath the coal to be mined: Provided, that information which pertains only to the analysis of the chemical and physical properties of the coal, except information regarding such mineral or elemental contents which are potentially toxic in the environment,

shall be kept confidential and not a matter of public record;

3.23.f.2. Premining overburden sampling and analysis or previous experience and correlation data, shall be made a part of each permit application for all acid-producing seams. Overburden sampling and analysis is to be performed in accordance with standard procedures set forth in Environmental Protection Agency Manual No. 600/2-78-054 (Field and Laboratory Methods Applicable to Overburdens and Minesoils) or other methods approved by the Director,

3.23.f.3. Forstandardroomand pillar mining operations, the thickness and engineering properties of clays or soft rock such as clay shale, if any, in the stratum immediately above and below each coal seam to be mined;

3.23.f.4. Cross sectional or areal maps illustrating faults, crop lines, dip/strike, synclines, anticlines and other known geologic structural features which have a bearing on the extraction of the coal and/or the hydrologic regime. The maps shall be accompanied by a detailed description of the illustrated data including a brief description of the degree of fracturing and weathering noted during the exploration drilling if it is believed to have a potential influence on the extraction of the coal and/or the hydrologic regime;

3.23.f.5. An explanation of the anticipated potential impacts of the proposed mining operation on the hydrology and geology of the area; and

3.23.f.6. An applicant maybe granted a waiver for the requirements of paragraphs 3.23.f.1 and 3.23.f.3 of this subdivision only after the Director finds in writing that the collection and analysis of such data is unnecessary because other equivalent information exists and is available to the Director, provided, that in areas where mining history has shown acid production to be a possibility, or in acid producing seams in areas with no prior mining history. site specific overburden sampling and analysis data shall be required.

324. Protection of Adjacent Operations. Surface mining activities shall be designed to protect disturbed surface areas. including spoil disposal sites, so as not to endanger any present or future operations of either surface or underground mining activities.

3.25. Transfer, Assignment or Sale of Permit Rights and Obtaining Approval; Sale, Conveyance or Assumption of Control or Ownership of an Operation.

3.25.a The Director may grant written approval of the transfer, assignment or sale of a permit under the following terms and conditions:

3.2S.a.1. The applicant shall affirmatively demonstrate to the Director that a bond in the full amount of that required for the permit will be kept in full force and effect before. during, and after the transfer, assignment, or sale.

3.25.a.2. Theapplication for transfer, assignment, or sale, shall set forth on forms prescribed by the Director, the information required in paragraphs I. through 6., subsection a.. section 9; and paragraph 9. subsection a. of section 9, subsections d. and f. of section 9; paragraph 10., subsection a. of section 10; and paragraph 5. subsection b. ofsection 18 of the Act and subdivisions 3.1.a, 3.1.b, 3.1.c, 3.1.d, 3.1.i, 3.1.j, and 3.1.k of this rule.

3.25.a.3. The applicant for transfer, assignment or sale of a permit shall, upon filing of the application with the Director, give notice of the filing in a newspaper of general circulation in the locality of the operation. The notice shall be in the form of a legal advertisement containing information as set forth on forms provided by the Director, the name and address of the original permitteeandthe permit number and shall provide for a thirty (30) day comment period. Any person whose interests are or may be adversely affected,

WEST VIRGINIA

HYDROLOGIC PROTECTION

REGULATIONS

November 1,1998

Bureau of Environment
Divison of Environmental Protection

TITLE 38
LEGISLATIVE RULES
OFFICE OF MINING AND RECLAMATION
DIVISION OF ENVIRONMENTAL PROTECTION

SERIES 2F
GROUNDWATER PROTECTION RULES COAL MINING OPERATIONS

§38-2F-1. General.

1.1. Scope. -- These rules establish a series of practices for the protection of groundwater which are to be followed by any person who conducts coal mining operations subject to the provisions of W. Va. Code §22-12-1 et seq. and subject to regulation under W. Va. Code §22-3, and/or under W.Va. Code §22-11, as it relates to coal mining operations.

1.2. Authority. -- W. Va. Code §22-12-5.

1.3. Filing Date. -- May 13, 1994.

1.4. Effective Date. -- June 1, 1994.

§38-2F-2. Definitions. As used in these rules, unless used in a context that clearly requires a different meaning, the term:

2.1. Act means the West Virginia Groundwater Protection Act, W. Va. Code §22-12-1 et seq.

2.2. Coal Mining Operation means any facility or activity which falls within the definition of "surface mine," "surface mining," or "surface mining operations" set forth in W. Va. Code §22-3-(3)(u).

2.3. Contaminant means any material in a solid, liquid or gaseous state that has the potential to cause contamination.

2.4. Contamination means any man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of the groundwater, resulting from activities regulated under this rule, in excess of existing groundwater quality, unless that activity or site has: (1) been exempted pursuant to subsection 5(h) of the Act; (2) has been granted a deviation or variance from existing quality as provided for in the Act; or (3) is subject to an order, permit, or other regulatory action that requires restoration or maintenance of groundwater quality at a different concentration level.

2.5. Director means the Director of the Division of Environmental Protection or the Director's authorized designee.

2.6. Groundwater means the water occurring in the zone of saturation beneath the seasonal high water table, or any perched water zones.

2.7. Impoundment means an area which is a natural topographic depression, man-made excavation, or diked area that is designed or improved in such a manner so as to hold an accumulation of contaminated surface runoff, process wastewater, product, or sewage, or any other liquid substance that could contaminate groundwater.

2.8. Liner means a continuous layer of natural or man-made materials beneath and on the sides of an area which restricts the downward or lateral escape of contaminants.

2.9. Permit means any license, certification, registration, permit, or any other approval granted by an agency authorized to regulate coal mining facilities or activities which may have an impact on groundwater.

2.10. Practice means any action which is protective of groundwater.

2.11, Secondary Containment means utilizing dikes, berms, synthetic or natural liner systems,

double-walled containment vessels, or any combination thereof to prevent contaminants from accidentally discharging into the environment.

2.12. Exempted coal mining operations means those operations subject to the exemption set forth in W. Va. Code, §22-12-5(h), and which are of an earth disturbing nature resulting from and directly related to coal extraction. Exempted coal mining operations include: coal and slurry impoundments; refuse areas and on-site haulways.

§38-2F-3. Groundwater Protection Plans and Practices for Coal Mining Operations.

3.1. Hydrologic and water quality protection practices established under the authority of W. Va. Code §22-11 or W. Va. Code §22-3 and the legislative rules promulgated thereunder, were enacted in part to protect groundwater and are hereby incorporated by reference into this rule.

3.2. All coal mining operations which are not subject to the exemption set forth in subsection (h), Section 5 of the Act, shall conduct groundwater protection practices, and prepare and implement groundwater protection plans, as set forth in this mle. All exempted coal mining operations must conduct groundwater protection practices consistent with W. Va. Code §22-11-1 et seq, and W. Va. Code §22-3-1 et seq. Exempted operations are not subject to the existing quality or to the related provisions of subsections (f) and (g), Section 5 of the Act. Further, exempted operations are not subject to water quality standards promulgated by the Environmental Quality Board pursuant to the Act. Such operations shall nonetheless be designed, constructed, operated, maintained, and closed in such manner as to reasonably protect groundwater from contamination.

3.3. Groundwater Protection Plans.

3.3.a. Each groundwater protection plan shall at a minimum contain the following:

3.3.a.1. An inventory of all operations and activities that are not exempted operations and may reasonably be expected to contaminate groundwater, and an indication of the current existence of and the potential for groundwater contamination. These include, but are not limited to, evaluation of materials handling areas, loading and unloading areas, equipment cleaning, maintenance activities, pipelines carrying contaminants, sumps and tanks containing contaminants.

3.3.a.2. A description of new and/or existing controls or activities to protect groundwater from the identified potential contamination sources.

3.3.a.3. Schedules and procedures for employee training addressing the prevention of groundwater contamination.

3.3.a.4. Provisions for inspections to be conducted by the operator at least every six (6) months to ensure that all elements of the coal mining operation's groundwater protection program are in place, properly functioning, and appropriately managed.

3.3.a.5. Groundwater monitoring proceduresas deemed appropriate for the facility and/or as required by the Director.

3.3a.6. A discussion of all information reasonably available to the facility/activity regarding existing groundwater quality at, or which may be affected by, the site.

3.3.b. Within one year of the effective date of these rules all existing non-exempt coal mining operations shall complete and implement a groundwater protection plan; provided, that the groundwater protection plan shall be included with any new permit application submitted under W. Va. Code §22-3 or W. Va. *Code* §22-11, ninety (90) days or later after the effective date of these. rules or with any permit renewal application submitted one (1) year or more after the effective date of these rules; provided, further, that the Director may waive the requirement for a groundwater protection plan for an operation which has been granted Phase II bond release in accordance with W. Va. Code §22-3, if he finds that such is not necessary for the purposes of the

Act.

3.3.c. The groundwater protection plan may be integrated with the statement of probable hydrologic consequences and the hydrologic reclamation plan required by W. Va. Code §22-3 and rules promulgated pursuant thereto.

3.3.d. A copy of the groundwater protection plan shall be kept on-site, or at the operator's nearest readily accessible office, and shall be made available for review by **the** Director upon request. A copy or copies of the plan shall be provided for Division review and/or files upon request by the Director.

3.3.e. **The** Director may require modification to groundwater protection plans to assure adequate proteaion of groundwater. Further, the Director may during review of a groundwater protection plan require such other information as he reasonably needs to evaluate the plan.

3.3.f. In addition to the basic groundwater protection plan requirements, each plan shall address the specific requirements set forth in subsections ***5*** and ***6*** of this section to the extent the operation includes such **areas** or features.

3.3.g. Adherence to a groundwater protection plan does not relieve the facility/activity of any obligation to comply with any other state, federal or local rule, regulation, law **or** act.

3.4. Groundwater Protection Practices for Non-Coal Loading and Unloading Areas; Distribution and **Bulk** Facilities.

3.4.a. Loading and unloading stations including but not limited to areas used to load and unload drums, trucks, and **railcars** shall have spill prevention and control facilities and procedures, **as** well **as** secondary containment if appropriate or if otherwise required. Spill containment and cleanup equipment shall be readily accessible.

3.4.b. Distribution facilities and bulk containers shall be designed/installed in such a manner so as to prevent spills and leaks from contaminating groundwater.

3.5. Groundwater Protection Practices for Pipelines, Ditches, Pumps, and Drums.

3.S.a. Pipelines conveying materials which have the potential to contaminate groundwater shall preferentially be installed above ground.

3.S.b. Ditches shall not be installed as primary conveyances for materials which have the potential to contaminate groundwater unless provided with appropriate liners.

3.5.c. Pumps and ancillary equipment (e.g., valves, flanges, filters, condensate lines and instrumentation) handling materials that have the potential to contaminate groundwater shall be selected and installed to prevent or contain any spills or **leaks.**

3.5.d. Drums, containing materials that have ***the*** potential to contaminate groundwater, shall be stored so that spills and leaks **are** contained. Measures shall be taken to control drum deterioration and/or damage due to handling.

3.6. Groundwater Protection Practices for **Sumps** and **Tanks.**

3.6.a. Above-ground storage tanks shall have secondary containment that is appropriate considering the potential to contaminate groundwater. Such secondary containment shall be adequately designed and constructed to contain ***the*** materials for a **time** sufficient to allow removal and disposal without additional contamination of groundwater, but in no case will that time be **less** than seventy-two (72) hours.

3.6.b. Underground tanks containing materials which have the potential to contaminate groundwater shall **be** designed, constructed, and operated utilizing leak detection or secondary containment, or other appropriate controls that ***are*** capable of preventing groundwater contamination

3.6.c. **New tanks** containing materials

that have the potential to contaminate groundwater may only be installed underground for overriding safety, legal, security, or fire protection concerns.

3.6.d. Sumps containing materials which have the potential to contaminate groundwater shall be designed, constructed, and operated utilizing leak detection or secondary containment, or other appropriate controls that are capable of preventing groundwater contamination.

3.6.e. Secondary containment is not required for sumps and tanks used only as secondary containment for other facilities.

§38-2F-4. Monitoring.

4.1. Pursuant to W. Va. Code §22-3 and W. Va. Code §22-11, the Director may require placement and maintenance of a reasonable number of groundwater monitoring stations (such as piezometers, monitoring wells, or springs) at coal mining operations in order to monitor for groundwater contamination and water levels. Existing facilities not currently monitoring groundwater shall do so if required by the Director.

4.2. In addition to the base line groundwater information required by CSR 38-2-3.22 and monitoring required by CSR 38-2-14.7, the Director may require such other base line data and monitoring as he determines appropriate to meet the requirements of these rules or the Act. A waiver of groundwater monitoring granted under CSR 38-2-14.7(c) may operate as a waiver for the purposes of these rules and the Act if, in addition to the demonstration required by CSR 38-2-14.7(c), the applicant demonstrates and the Director finds in writing that monitoring is not necessary for the purposes of the Act or these rules.

4.3. Groundwater monitoring stations shall be located and maintained, or drilled, constructed, and maintained in a manner that allows accurate determination of groundwater quality and levels, and prevents contamination of groundwater through the finished well hole or casing.

4.4. Groundwater monitoring stations shall be designed and installed in accordance with applicable rules promulgated pursuant to the Act.

4.5. All groundwater monitoring stations shall be accurately located, utilizing latitude and longitude, by surveying or other acceptable means, and the coordinates shall be included with all data collected.

4.6. Data Management. The Director may at his discretion require submittal of any or all groundwater monitoring data collected in association with a regulated activity, and may further specify an electronic format in which the data is to be submitted.

§38-2F-5. Fees.

5.1. Coal mining operations shall be subject to the fee schedule and fee payment requirements as set forth in CSR 47-55-1 et seq. Failure to remit fees when and as due is a violation of these rules.

§38-2F-6. Prohibitions.

6.1. It shall be unlawful for any person, unless an authorization has been issued by a groundwater regulatory agency, to deliberately allow crude oil, or any petroleum product derived from crude oil, or septage, or natural gas, or salt water, or any chemical mixture which may contaminate groundwater to escape from any well, pipeline, impoundment, storage tank, treatment unit, equipment, or storage container, or to deliberately allow such materials to flow onto or under the land surface in a manner that could contaminate groundwater.

Note: 47CSR11 requires all spills and accidental discharges to be reported by calling 1-800-642-3074.

§38-2F-7. Enforcement.

7.1. Any person who violates the Act or these rules shall be subject to applicable civil and criminal penalties, injunctive relief, enforcement

orders, and procedures as set forth in section 10 of the Act.

7.2. The appeal and review procedures set forth in section 11 of the Act shall be applicable to actions arising under these rules.

7.3. Civil penalties for violations of these rules shall be assessed by the Director in accordance with CSR 47-56.

7.4. Violations by a coal operator, arising from acts or omissions subject solely to these rules or the Act, shall not be counted toward a pattern of violations or in determining the history of violations pursuant to W. Va. Code §22-3, and rules pursuant thereto.

§38-2F-8. Remediation.

8.1. For all non-exempt coal mining operations, The Director may conduct or order other persons to conduct remedial actions which are appropriate to the type and extent of contamination, and which are subject to applicable permit conditions and variances and deviations from existing water quality and water quality standards that are allowed under the Act. The Director encourages agreements for investigation and cleanups in appropriate cases.

8.2. The use of permanent solutions to the maximum extent practical to correct groundwater contamination is preferred.

8.3 Cleanup actions shall not rely primarily on dilution and dispersion of the substance if active remedial measures are technically and economically feasible, as determined by the Director. Natural attenuation of groundwater contaminationmay be an appropriateremediation response.

8.4 Adequate groundwater monitoring shall be conductedto demonstrate control and containment of the substance. The Director shall specify which parameters should be monitored in a remedial operation. The groundwater monitoring must continue until results assure adequate remedial action was taken.

8.5. In addition to any required remediation, the Director may order the facility or activity to mitigate or compensate for the loss of beneficial use of groundwater, or for any significant adverse impact to groundwater.

§38-2F-9. Applicability of Requirements.

9.1. The Director may, to the extent authorized by the Act, waive some or all of the requirements of this rule upon determining in writing that such requirements are not necessary to protect groundwater from contamination.

§38-2F-10. Appropriateness Study.

10.1. The Environmental Protection Advisory Council shall conduct a study and report back to the Joint Committeeon Government and Finance on or before November 1, 1995. The study shall be an evaluation of the appropriateness and effectiveness of these rules and shall include any recommendations, modifications, or alternatives thereto.

CODE OF WEST VIRGINIA

Chapter 22 - Articles 1, 4, 11, 12, 13, and 14

Chapter 22B - Article 1

June 10,1994

Bureau of Environment

Division of Environmental Protection

concurrence of such designated agencies or political subdivisions, as appropriate, are hereby authorized to be groundwater regulatory agencies for purposes of regulating such facilities or activities to satisfy the requirements of this article. In addition, the department of agriculture is hereby authorized to be the groundwater regulatory agency for purposes of regulating the use or application of pesticides and fertilizers. Where the authority to regulate facilities or activities which may adversely impact groundwater is not otherwise assigned to the division of environmental protection, the department of agriculture, the bureau of public health or such other specifically designated agency pursuant to any other provision of this code, the division of environmental protection is hereby authorized to be the groundwater regulatory agency with respect to such unassigned facilities or activities. The division of environmental protection shall cooperate with the department of agriculture and the bureau of public health, as appropriate, in the regulation of such unassigned facilities or activities.

(c) Within one year of the effective date of this article, the department of agriculture, bureau of public health and division of environmental protection shall promulgate in accordance with the provisions of chapter twenty-nine-a of this code such legislative rules as may be necessary to implement the authority granted them by this article.

(d) Groundwater regulatory agencies shall develop groundwater protection practices to prevent groundwater contamination from facilities and activities within their respective jurisdictions consistent with this article. Such practices shall include, but not be limited to, criteria related to facility design, operational management, closure, remediation and monitoring. Such agencies shall issue such rules, permits, policies, directives or any other appropriate regulatory devices, as necessary, to implement the requirements of this article.

(e) Groundwater regulatory agencies shall rake such action as may be *necessary* to assure that facilities or activities within their respective jurisdictions maintain and protect groundwater at existing quality, where the existing quality is better than that required to maintain and protect the standards of purity and quality promulgated by the board to support the present and future beneficial uses of the state's groundwater.

(f) Where a person establishes *to the* director that (1) *the* measures *necessary* to preserve existing quality are not technically feasible or economically practical and (2) a change m groundwater quality is justified based upon economic or *societal* objectives, the director may allow for a deviation from such existing quality. Upon the director's finding of (1) and (2) above, the director may grant or deny such a deviation for a specific *site,* activity or facility or for a class of activities or facilities which have impacts which are substantially similar and exist m a defined geographic area. The director's reasons for granting or denying such a deviation shall be set forth in Writing and the director has the exclusive authority to determine *the* terms and conditions of such a deviation. To insure that groundwater standards promulgated by the board are not violated and that the present and future beneficial uses of groundwater are maintained and protected, the director shall evaluate *the cumulative impacts* of all facilities and activities on the groundwater resources m question prior to any granting of such deviation from existing quality. The director shall consult with the department of agriculture and the bureau of public health as appropriate m the implementation of this subsection. The director shall, upon a written request for *such* information, provide notice of any deviations from existing quality granted pursuant to this subsection.

(g) Should the approval required m subsection (f) of this section be granted allowing for a deviation from existing quality, the groundwater regulatory *agencies* shall take such alternative action as may be *necessary* to assure that facilities and activities within their respective jurisdictions maintain and protect the standards of purity and quality promulgated by the board to support the present and future beneficial uses for that groundwater. In maintaining and protecting such standards of the board, such agencies shall establish preventative action limits which, once reached; shall require action to control a source of contamination to assure that such standards are not violated. The director shall provide guidelines to the groundwater regulatory agencies with respect to the establishment of such preventative action limits.

(h) Subsections (e). (f) and (g) of this section do not apply to coal extraction and earth disturbing activities directly involved m coal extraction that are subject to either or both article three or eleven of this chapter. Such activities are subject to all other provisions of this article.

(i) This article is not applicable to groundwater within areas of geologic formations which are site specific to:

(1) The production or storage zones of crude oil or natural gas and which are utilized for the exploration, development or production of crude oil or natural gas permitted pursuant to articles *six*, seven, eight, nine or ten of this chapter; and

(2) The injection zones of Class II or III wells permitted pursuant to the statutes and rules governing the underground injection control program.